IN THE CLAIMS

1. (Currently Amended) A method for sending a message from a sending machine to a receiving machine, comprising:

forming a first segment group comprising a pairing between a first source segment in a memory space of a sending machine and a first target segment in a memory space of a receiving machine, wherein the first source segment and the first target segment comprise like number of fixed size partitions of a first partition size;

forming a second segment group comprising a pairing between a second source segment in a memory space of the sending machine and a second target segment in a memory space of the receiving machine, wherein the second source segment and the second target segment comprise like number of fixed size partitions of a second partition size; wherein the second partition size is unequal to the first partition size;

receiving, in the sending machine, a message to be sent;

selecting a segment group from the first segment group and the second segment group for transferring the message, the selected segment group having a partition size smaller than a length of the message;

copying the message into ~~the~~ a plurality of contiguous partitions of the source segment of the selected segment group; and

sending the content of the plurality of contiguous partitions of the source segment to the receiving machine as a single message.

2.   (Currently Amended) The method of claim 1, further comprising:

testing the source segment of the selected segment group to determine whether the

source segment is large enough to hold the message; and

selecting a new segment group having a partition size larger than the ~~first~~ selected

segment group, if the source segment of the ~~first~~ selected segment group is not

large enough to hold the message.

3.   (Original) The method of claim 1, wherein the target segment is a buffer allocated in

the memory of the target machine and the source segment is an image of the target

segment memory-mapped into the memory address space of the sending machine.

4.   (Original) The method of claim 3, wherein forming a first segment group comprising

a pairing between a first source segment in a memory space of a sending machine and

a first target segment in a memory space of a receiving machine, further comprises:

allocating a buffer for the target segment in memory of the receiving machine;

registering a descriptor of the buffer for the target segment with a remote shared

memory manager;

obtaining, at the sending machine, the descriptor of the buffer for the target segment;

and

forming an image of the target segment in the memory address space of the sending

machine.

5.   (Original) The method of claim 1, further comprising:

registering each segment group in a segment group table and each segment in a

segment table.

6. (Original) The method of claim 5, wherein each segment comprises a directory of

directory entries, one for each partition in the segment, the method further

comprising:

maintaining in an entry of the directory of directory entries an indicator of whether the

directory entry corresponds to a first partition of a plurality of contiguous

partitions storing a message and information about a next partition of the

plurality of contiguous partitions if the message spans multiple partitions.

7. (Original) The method of claim 6, wherein selecting a second paired source segment

and target segment having a partition size smaller than a length of the message further

comprises:

searching for a paired source segment and target segment capable of transferring the

message from the sending machine to the receiving machine; and

determining from an entry in the directory corresponding to the paired source segment

and target segment whether the paired source segment and target segment

comprise sufficient contiguous partitions to transfer the message.

8. (Original) The method of claim 1, further comprising:

forming additional segment groups comprising pairings between a source segment in

a memory space of the sending machine and a second target segment in a

memory space of the receiving machine, wherein the source segment and the target segment comprise like number of fixed size partitions having a partition size unequal to the first partition size and the second partition size.

9.   (Original) The method of claim 2, wherein testing the source segment of the selected segment group to determine whether the source segment is large enough to hold the message comprises:

determining whether partition size and span factor of the segment are large enough.

10.   (Currently Amended) A computer-readable <u>storage</u> medium carrying one or more sequences of instructions for sending a message from a sending machine to a receiving machine, which instructions, when executed by one or more processors, cause the one or more processors to carry out the steps of:

forming a first segment group comprising a pairing between a first source segment in a memory space of a sending machine and a first target segment in a memory space of a receiving machine, wherein the first source segment and the first target segment comprise like number of fixed size partitions of a first partition size;

forming a second segment group comprising a pairing between a second source segment in a memory space of the sending machine and a second target segment in a memory space of the receiving machine, wherein the second source segment and the second target segment comprise like number of fixed

size partitions of a second partition size; wherein the second partition size is
unequal to the first partition size;

receiving, in the sending machine, a message to be sent;

selecting a segment group from the first segment group and the second segment group
for transferring the message, the selected segment group having a partition
size smaller than a length of the message;

copying the message into ~~the~~ a plurality of contiguous partitions of the source
segment of the selected segment group; and

sending the content of the plurality of contiguous partitions of the source segment to
the receiving machine as a single message.

11. (Currently Amended) The computer-readable storage medium of claim 10, further
comprising instructions for carrying out the steps of:

testing the source segment of the selected segment group to determine whether the
source segment is large enough to hold the message; and

selecting a new segment group having a partition size larger than the ~~first~~ selected
segment group, if the source segment of the ~~first~~ selected segment group is not
large enough to hold the message.

12. (Currently Amended) The computer-readable storage medium of claim 10, wherein
the target segment is a buffer allocated in the memory of the target machine and the
source segment is an image of the target segment memory-mapped into the memory
address space of the sending machine.

13.   (Currently Amended) The computer-readable storage medium of claim 12, wherein the instructions for forming a first segment group comprising a pairing between a first source segment in a memory space of a sending machine and a first target segment in a memory space of a receiving machine, further comprise instructions for carrying out the steps of:

allocating a buffer for the target segment in memory of the receiving machine;

registering a descriptor of the buffer for the target segment with a remote shared memory manager;

obtaining, at the sending machine, the descriptor of the buffer for the target segment; and

forming an image of the target segment in the memory address space of the sending machine.

14.   (Currently Amended) The computer-readable storage medium of claim 10, further comprising instructions for carrying out the step of:

registering each segment group in a segment group table and each segment in a segment table.

15.   (Currently Amended) The computer-readable storage medium of claim 14, wherein each segment comprises a directory of directory entries, one for each partition in the segment, and further comprising instructions for carrying out the step of:

maintaining in an entry of the directory of directory entries an indicator of whether the directory entry corresponds to a first partition of a plurality of contiguous partitions storing a message and information about a next partition of the plurality of contiguous partitions if the message spans multiple partitions.

16.   (Currently Amended) The computer-readable <u>storage</u> medium of claim 15, wherein the instructions for selecting a second paired source segment and target segment having a partition size smaller than a length of the message further comprise instructions for carrying out the steps of:

searching for a paired source segment and target segment capable of transferring the message from the sending machine to the receiving machine; and

determining from an entry in the directory corresponding to the paired source segment and target segment whether the paired source segment and target segment comprise sufficient contiguous partitions to transfer the message.

17.   (Currently Amended) The computer-readable <u>storage</u> medium of claim 10, further comprising instructions for carrying out the steps of:

forming additional segment groups comprising pairings between a source segment in a memory space of the sending machine and a second target segment in a memory space of the receiving machine, wherein the source segment and the target segment comprise like number of fixed size partitions having a partition size unequal to the first partition size and the second partition size.

18.   (Currently Amended) The computer-readable <u>storage</u> medium of claim 11, wherein instructions for carrying out the step of testing the source segment of the selected segment group to determine whether the source segment is large enough to hold the message comprise instructions for carrying out the step of:

determining whether partition size and span factor of the segment are large enough.

19.   (Currently Amended) A system comprising:

a first programmable computer;

a second programmable computer;

a memory based interconnect for coupling the first programmable computer to the second programmable computer by mapping one or more segments of memory of the second programmable computer into the memory address space of the first programmable computer;

a mechanism for forming a first segment group comprising a pairing between a first source segment in a memory space of the first programmable computer and a first target segment in a memory space of the second programmable computer, wherein the first source segment and the first target segment comprise like number of fixed size partitions of a first partition size;

a mechanism for forming a second segment group comprising a pairing between a second source segment in a memory space of the first programmable computer and a second target segment in a memory space of the second programmable computer, wherein the second source segment and the second target segment comprise like number of fixed size partitions of a second partition size; wherein the second partition size is unequal to the first partition size;

a mechanism for receiving, in the first programmable computer, a message to be sent;

a mechanism for selecting a segment group from the first segment group and the second segment group for transferring the message, the selected segment group having a partition size smaller than a length of the message;

a mechanism for copying the message into ~~the~~ a plurality of contiguous partitions of the source segment of the selected segment group; and

a mechanism for sending the content of the plurality of contiguous partitions of the source segment to the second programmable computer as a single message.

20-25 Canceled